LISTING OF CLAIMS

For the ease of examination, this listing of claims is provided will replace all prior versions, and listings, of claims in the application:

Claims:

1.   (Currently Amended) A system ~~for~~ that operates ~~operating~~ a wireless ad hoc network, ~~said system~~ comprising:

a plurality of nodes; and

an active packet ~~for implementing~~ that implements a genetically programmed adaptation of one of ~~said~~ the plurality of nodes in response to a change of condition of ~~said~~ the one node of ~~said~~ the plurality of nodes;

a functional unit that is added into the active packet;

a fitness function that allows functional evolution of the plurality of nodes, the functional unit remaining inactive until the fitness function is added into the one node of the plurality of nodes and evolves to maximize the fitness function,

wherein the system genetically modifies itself to meet a specific fitness criteria based on the fitness function.

2-5.   (Cancelled)

6.   (Currently Amended) The system as set forth in claim ~~5~~ 1, wherein ~~said~~ the active packet performs a mutation operation for generating a single parental program.

7.   (Currently Amended) The system as set forth in claim 6, wherein ~~said~~ the single parental program ~~has been~~ is probabilistically selected based on fitness.

8.   (Currently Amended) A ~~computer program product~~ computer-readable medium storing instructions for evolutionarily adapting a wireless ad hoc network, ~~said computer program product~~ the instructions comprising:

~~a first instruction for~~ implementing a genetically programmed adaptation of one of a plurality of nodes using an active packet in response to a change of condition of the one node of the plurality of nodes~~, said first instruction being executed by an active packet~~; and

~~a second instruction for~~ injecting a functional unit into the active packet; and

injecting a fitness function into the one node of the plurality of nodes to allow functional evolution of the plurality of nodes, the functional unit remaining inactive until the fitness function is added and evolves to maximize the fitness function,

wherein the wireless ad hoc network genetically modifies itself to meet a specific fitness criteria based on the fitness function..

9.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim 8, further including ~~a third~~ an instruction ~~for~~ comprising:

performing a crossover operation by generating a two parental programs which are probabilistically ~~selecting~~ selected ~~two parental programs~~ based on fitness.

10.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim 9, wherein the two parental programs have different sizes and shapes.

11.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim 8, further including ~~a fourth~~ an instruction ~~for~~ comprising:

continuously evaluating the functional unit.

12.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim ~~11~~ 8, further including ~~a fifth~~ an instruction ~~for~~ comprising:

maintaining a population of structures that evolve according to rules of selection and genetic operators.

13.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim ~~12~~ 8, further including ~~a sixth~~ an instruction ~~for~~ comprising:

classifying functional units within functional unit classes.

14.   (Currently Amended) The ~~computer program product~~ computer-readable medium as set forth in claim ~~13~~ 8, further including ~~a seventh~~ an instruction ~~for~~ comprising:

enforcing minimal requirements on an execution environment of the wireless ad hoc network.

15.   (Currently Amended) A method for evolutionarily adapting a wireless ad hoc network, ~~said method~~ comprising ~~the steps of~~:

operating a plurality of nodes;

implementing a genetically programmed adaptation of one of the plurality of nodes using an active packet in response to a change of condition of the one node of the plurality of nodes ~~being executed by an active packet~~;

~~executing said operating step by an active packet;~~

injecting a functional unit into the active packet; and

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~~probabilistically selecting two parental programs based on fitness.~~

injecting a fitness function into the one node of the plurality of nodes to allow functional evolution of the plurality of nodes, the functional unit remaining inactive until the fitness function is added and evolves to maximize the fitness function,

wherein the wireless ad hoc network genetically modifies itself to meet a specific fitness criteria based on the fitness function.

16.   (Currently Amended) The method as set forth in claim 15, further ~~including the step of~~ comprising:

publishing ~~the~~ a state of each of the plurality of nodes to ~~the~~ other nodes in the plurality of nodes.

17.   (Currently Amended) The method as set forth in claim ~~16~~ 15, further ~~including the step of~~ comprising:

predicting a state of the wireless ad hoc network.

18.   (Currently Amended) The method as set forth in claim 17, further ~~including the step of~~ comprising:

querying the wireless ad hoc network to verify ~~the~~ accuracy of ~~said~~ the predicting step.

19.   (New) The method as set forth in claim 15, wherein the active packet performs a mutation operation for generating a single parental program which is probabilistically selected based on fitness.

20.   (New) The method as set forth in claim 15, wherein the active packet performs a crossover operation for generating a two parental program which are probabilistically selected based on fitness.